Секція 1. Теорія, методи і засоби визначення стану та підвищення надійності мехатронних систем

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MEANS AND METHODS OF DETERMINING THE TECHNICAL CONDITION AUTONOMOUS ENERGY SOURCES

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Annotation. *On the example of an autonomous source of electric energy with an internal combustion engine the structure of the scheme of the test system of diagnosis is substantiated. The possibility of determining the energy performance of the system by diagnostic parameters was evaluated.*

Key words: *autonomous power supply, technical condition, the internal combustion engine, the cylinder piston.*

Introductions. Upgrade reliable operation of energy efficient electrical equipment is a complex diagnostic procedures to determine the technical condition and timely repair. Among the organizational and technical means aimed at preserving life, health and disability rights at work, special attention is taken away special group of electric receivers. A special group of electric receivers released from the electric receiver category I reliability, uninterrupted work is required for trouble-free production shutdown to prevent the threat of people's lives. To threaten human life stipulate additional power from the third independent mutually reserving power. At the heart of the process of diagnosis is to obtain experimental data, diagnostic features, which, depending on the degree of informational content determine the state of the object under study. The main reason for the loss productivity autonomous power and efficiency of internal combustion engines is wearing cylinder-piston group. These drawbacks are deprived system diagnostics internal combustion engine using the starter current level in a diagnostic setting.

At the heart of the diagnostic system, the compression method can be used when the engine is cranked at the starting speed without fuel. The disadvantage of the compression method is that it is highly dependent on the skill of the operator.

Aim. The aim of the study is to improve the method for diagnosing a generator with an internal combustion engine.

Materials and methods. One of the advanced methods of diagnosing the status of independent stations is a method based on the analysis of changes since the scroll crankshaft of the engine without fuel supply in compressor mode by measuring current and voltage of the motor starter in different states of the combustion chamber [1, 2].

From the analysis of mathematical models of process diagnostics engine should be noted about essential the compression component of the state of the internal combustion engine energy efficiency of independent power sources. Existing models need to be clarified with regard to certain specific laws of motion of mass (piston, connecting rod, crankshaft).

The schedule of change of efficiency of efficiency (efficiency) of the system is presented fig. 1.

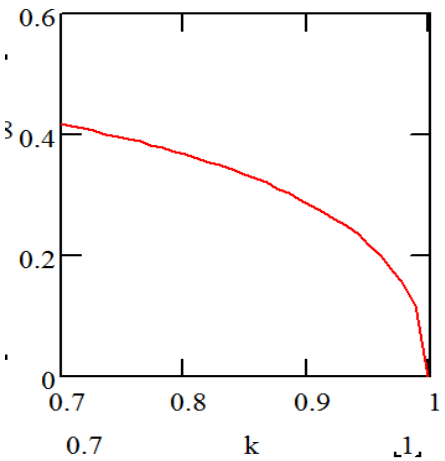

Figure 1- Graph of change of efficiency of autonomous power supply from degree of compression

Conclusions. From the analysis of the graph it should be noted the hyperbolic dependence of the change in the efficiency of the autonomous power source on the ratio of currents.

Literature

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THERMODYNAMIC METHOD FOR DIAGNOSIS OF THE PUMP

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Annotation. *Thermodynamic method for diagnosing the proposed package, which is more incorrectly characterized by physically second changes, the absence of energytransformations occurring at the port pump, estimated by the indirect intensity. This parameter provides the most important informationcharacterization of the general technicalrequirementspumps recommended for rapid diagnosis.*

Keywords:*pump, diagnostics, thermodynamic method, internality, exergy, entropy, enthalpy, idealadiabatic process.*

Анотація.*Пропонуєтьсятермодинамічнийспосібдіагностуваннянасоса, якийнайбільшкоректнохарактеризуєфізичнотермодинамічнусутьперетвореньенергіївпроточнійчастинінасоса, щооцінюютьсяйоговнутрішнімККД. Даний параметр найбільш інформативно характеризує загальний технічний стан насоса і рекомендується для його експрес-діагностування.*